Zitteliana	10	393–394	München, 1. Juli 1983	ISSN 0373 – 9627

Cretaceous succession of insect assemblages in China

By

LIN QI-BIN*)

INTRODUCTION

The Cretaceous non-marine sediments are well developed both in North and South China and yield the richest insect fossils in East Asia. The Johol fauna carrying insect, Ostracoda, Conchostraca, Bivalvia, Gastropoda and fish fossils is well known as notable animal remains in the world, because it appears to have been widely spread over North and East China and extensively used for the examination of specific ages and the correlation of rocks in various parts of China in paleontological researches. Since 1923, in addition to the publication of "Cretaceous Fossils from Shantung" a number of insect fossil materials have been collected and studied, such as a Cretaceous beetle, *Umenocoleus sinuatus* from Gansu province described by CHEN et T'AN (1973). A few insect fossils, *Sinosirex gigantea* and *Sinoeschnidea heishankowensis,* described by HONG (1975) from Hebei and several insects recorded later by HONG and WANG from other Lower Cretaceous beds of Inner Mongolia and Hebei Province; more recently, the present writer made a discovery of still more fossil insects of the same age from some important localities and described more than fifty-two species (LIN, 1976, 1978, 1980).

Based on these studies and concerned with the informations about other animal or plant fossils, the insect of the Cretaceous in China can be grouped into three assemblages, the succession of which is briefly given below: 1. *Coptoclava* assemblage, 2. *Solusiparorpa* assemblage and 3. *Siculocorixa* assemblage.

1. *COPTOCLAVA* ASSEMBLAGE

This assemblage is considered to be Lower Cretaceous, composed mainly of *Coptoclava longipoda, Mesolygaous laiyangensis, Mesoblattina sinica, Chironomapsis gracilis, Sinosirex gigantea, Sinaeschnidia heishankowensis, Clypostemma xyphiale, Ratiticorixa stenorhinchis, Vulcanicorixa dorylis* and *Penaphis circa* including the following formations: Dalazi Formation of Jilin Province, Shahai Formation of Liaoning Province, Laiyang Formation of Shantung Province, Lushangfen Formation of Beijing, the upper member of Shouchang Formation in Zhejiang Province, Huoshangpu Formation of Shanxi Province and Xiagou Formation of Gansu Province. The shale or mudstone in these formations are generally thickbedded and rich in insect fossils.

Among the significant species are *Coptoclava longipoda, Mesolygaous laiyangensis* and *Mesoblattina sinica*. A number of *Coptoclava longipoda* larvae in the Dalazi Formation which are known as a kind of younger beettle. So far as knowns, the formation is one of the definitely established Cretaceous beds in China. In some outcrops of this formation, abundant larvae of *Coptoclava longipoda* have been found with no other insect fossils being associated with them. But in other outcrops of the formations of this assemblage, they were found in association with *Mesoblattina sinica, Chironomapsis gracilis, Mesolygaous laiyangensis* etc. As one of the important elements in the assemblage, appears to have been widely spread over North and East China. However, as these younger larval beettles were not well-preserved, many younger geologists, sometimes, incorrectly identified them as *Ephemeropsis trisetalis* when they are on field work.

*) Nanjing Institute of Geology and Palaeontology, Academia Sinica, Chi-Ming-Ssu, Nanjing, China.

2. *SOLUSIPARORPA* ASSEMBLAGE

This assemblage is one more insect fauna of Lower Cretaceous, probably representing late Lower Cretaceous. Formations such as Guantou and Zhaochuan in Zhejiang Province, the upper member of Yantang Formation in Anhwei Province and Zhongou Formation of Gansu Province belong to this assemblage, in which are contained important elements: *Solusiparorpa gibbidorsa, Chiromomaptera melanura* and *Taphacris turgis*.

3. *SICULOCORIXA* ASSEMBLAGE

In the Upper Cretaceous, this assemblage is represented by the formation of Juezhou Group of Zhejiang Province. The insect bed lies at the middle of the group, carrying dominant element *Siculicorixa estria* and others such as *Clypostemma limna* and *Prionocephale deplanae*. In the Upper Cretaceous insect bed in Xingning region of Guangdong Province was also found *Siculicorixa estria*. Although this assemblage is very little known in China, its non-marine sediments of Cretaceous were well developed. Hence, a very rich content of insect remains may be expected in the beds of Upper Cretaceous.

REFERENCES

CHEN SICIEN and T'AN CHUAN-CHIEH, (1973): A New Family of Coleoptera from the Lower Cretaceous of Kansu. – Acta Entomologica Sinica, **16**, (2): 169–178.

HONG YOU-CHONG, (1975): A New Family – Sinosiricidae (Hymenoptera: Siricoidea) in West-Weichangder, Hebei Province. – Acta Entomologica Sinica, **18**, (2): 235–241.

LIN QI-BIN, (1976): The Jurassic Fossil Insects from Western Liaoning. – Acta Paleontologica Sinica, **15**, (1): 171–176.

— — , (1978): On the Fossil Blattoidea of China. – Acta Entomologica Sinica, **21**, (3): 335–342.

— — , (1980): Mesozoic Insects from Zhejiang and Anhui Provinces, China. In "Division and Correlations on the Mesozoic Volcanosedimentary Formation in the Provinces Zhejiang and Anhui, China". – Science Press, pp. 211–234.

PING, C. (1928): Cretaceous Fossil Insects of China. – Palaeontologia Sinica, **13**, (1): 5–47.

WANG WU-LI (1980): Class Insecta. – In: "Palaeontological Atlas of Northeast China". – pp. 130–153, Geological Publishing House, Beijing, (in Chinese).